

Remarks

Status of the Claims and Support for the Amendments to the Claims

By the foregoing amendments, claims 4, 5, 12, 18 and 26-43 have been canceled without prejudice or disclaimer. Claims 11, 22, 24 and 25 are sought to be amended. New claims 44-47 are sought to be added. Support for the amendments to claims 11, 22, 24 and 25, and for new claims 44-47, can be found throughout the specification, and in the claims as originally filed. Therefore, these amendments introduce no new matter. Upon entry of the foregoing amendments, claims 1-3, 6-11, 17, 19, 21-25 and 44-47 are pending in the application, with claims 1, 9, and 44-47 being the independent claims. Examiner Mehta confirmed in a telephone call of June 26, 2008, that claims 6, 10, 17 and 19 have been withdrawn from consideration, even though no indication of this was made in the current Office Action. Claims 1-3, 7-9 and 21 have been allowed.

Summary of the Office Action

In the Office Action dated April 24, 2008, the Examiner has made three objections to the claims, and four rejections of the claims. Based on the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

Objections to the Claims

In the Office Action at pages 2-3, Sections 7-8, the Examiner has objected to claims 4, 5, 11, 24, 26, 30, 35, 39 and 40. The Examiner has indicated that the phrases "15 nucleic acids" and "100 nucleic acids," in claims 4, 5, 26, 30, 35, 39 and 40, should

be amended to "15 nucleotides" and "100 nucleotides," respectively. By the foregoing amendments, claims 4, 5, 26, 30, 35, 39 and 40 have been canceled. Hence, this objection has been rendered moot. However, Applicants note that new claims 44 and 45 recite "100 nucleotides."

The Examiner has next objected to claim 11, indicating that "SEA" should be amended to recited "SEQ." Applicants thank the Examiner for bringing this typographical error to their attention. Present claim 11 recites "SEQ." Hence, this objection has been accommodated.

Finally, the Examiner has objected to claim 24 as allegedly being of improper form because a multiple dependent claim cannot depend from another multiple dependent claim. Present claim 24 is not a multiple dependent claim as it depends only from claim 23. Thus, rejection has been rendered moot.

The Rejection under 35 U.S.C. § 112, Second Paragraph

In the Office Action at page 3, section 9, the Examiner has rejected claims 4, 5, 11, 12, 22, 23, 25-28, 30-32, 34-37 and 39-42 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. Applicants respectfully traverse this rejection.

The Examiner contends that claims 4, 5, 28, 32, 34, 37, 39 and 42 are allegedly indefinite because it is unclear what range is to be covered by the recitation of "at least about." Applicants respectfully disagree with the examiner. However, as noted above, claims 4, 5, 28, 32, 34, 37, 39 and 42 have been canceled by the foregoing amendments. Hence, this rejection has been rendered moot.

The Examiner has also indicated that claims 4 and 5 are indefinite for recitation of the phrase "encodes comprises," as it is unclear what is meant by this recitation. As noted above, claims 4 and 5 have been canceled. Hence, this rejection has been rendered moot.

Next, the Examiner contends that claim 11 is indefinite, alleging that the phrase "vector comprising the nucleic acid of (a)," is unclear since part (a) of claim 11 refers to culturing a transformed cell, not a nucleic acid. Applicants respectfully disagree with the Examiner. However, present claim 11 recites the nucleic acid of (i) or (ii). Hence, this rejection has been overcome.

Finally, the Examiner asserts that claim 25 is indefinite because it is unclear if the propagation material comprises a nucleic acid, DNA or vector. Applicants respectfully disagree with the Examiner and submit that the claim is not indefinite. However, present claim 25 recites that the propagation material comprises the nucleic acid of claim 1, or the vector of claim 7. Hence, this rejection has been overcome.

In view of the foregoing remarks, reconsideration and withdrawal of the rejection of claims 4, 5, 11, 12, 22, 23, 25-28, 30-32, 34-37 and 39-42 under 35 U.S.C. § 112, second paragraph, are respectfully requested.

The Rejection under 35 U.S.C. § 112, First Paragraph, Written Description

In the Office Action at pages 4-5, section 10, the Examiner has rejected claims 4, 5, 12, 22, 23, 25-32, 34-37 and 39-42 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. By the foregoing

amendments, claims 4, 5, 12, and 26-43 have been canceled. Hence, this rejection has been rendered moot as it may have applied to these claims.

The Examiner alleges that the phrases "at least about 90% or 95% complementary to the RNAs recited in claims 4 and 5," and "at least 1000 nucleic acids," are lacking support in the specification, and that the phrase "at least about" is new matter. Applicants respectfully disagree with the Examiner. However, by the foregoing amendments, claims 22, 23 and 25, have been amended to depend solely from allowed claims 1 and 7. Hence, this rejection has been rendered moot.

In view of the foregoing remarks, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, for alleged lack of written description.

The Rejection under 35 U.S.C. § 112, First Paragraph, Enablement

In the Office Action at pages 5-6, section 11, the Examiner has rejected claims 4, 5, 12, 18 and 22-43 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the enablement requirement. By the foregoing amendments, claims 4, 5, 12, 18 and 22-43 have been canceled. Hence, this rejection has been rendered moot. However, Applicants respectfully traverse the Examiner's rejection as it may apply to new claims 44-47.

The Examiner contends that, while the present specification enables a DNA encoding a sense RNA completely complementary to the completely complementary strand of bases 87-1400 of SEQ ID NO:1, or a DNA encoding an antisense RNA

completely complementary to bases 87-1400 of SEQ ID NO:1, it allegedly does not enable other DNAs encompassed by the claims.

As set forth in the Office Action dated October 2, 2007, the Examiner contends that the present specification does not provide any examples showing that DNAs of less than 23 nucleotides, having complete or incomplete complementarity to its target sequence, were able to silence expression of SEQ ID NO:1. The Examiner cites two references in support of the proposition that, RNAs of less than 23 nucleotides in length, do not act as silencers of targeted nucleic acids for use in antisense-based therapies. The Examiner thus concludes that, nucleic acids of 15 nucleotides, as disclosed in the present specification, are not enabled. Applicants respectfully disagree with the Examiner and submit that a person of ordinary skill in the art would readily be able to make and use nucleic acids of at least 15 nucleotides, as taught by the present specification.

However, solely to expedite prosecution, present claims 44-47 recite isolated DNAs that encode sense RNAs comprising at least 100 nucleotides, or antisense RNA comprising at least 100 nucleotides, that are 100% complementary to the specified RNA molecules (including bases 87-1400 of SEQ ID NO: 1). As set forth in Applicants' Reply to Office Action dated February 4, 2008 (the disclosure of which is incorporated by reference herein in its entirety), while it may have required some experimentation to prepare the recited 100% complementary RNA strands and the DNA molecules encoding such strands, this experimentation would have merely been routine. The relationship between complementary nucleic acids (i.e., the ability to hybridize) was a well-known concept at the time of filing of the presently claimed invention, as were methods to produce RNA, and DNA molecules encoding such RNAs. Furthermore, as new claims

44-47 require that the DNA molecules encode RNA comprising at least 100 nucleotides, the Examiner's argument that RNAs of less than 23 nucleotides in length do not act as silencers of targeted nucleic acids for use in antisense-based therapies no longer applies. Thus, Applicants respectfully submit that the presently claimed invention is clearly enabled as a person of ordinary skill in the art would clearly have been able to make and use the recited isolated DNA molecules (for example, to inhibit the expression of a target gene), as set forth in the present specification.

In view of the foregoing remarks, Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, for alleged non-enablement.

The Rejection under 35 U.S.C. § 102(b) over New England Biolabs Catalog

In the Office Action at page 7, section 12, the Examiner has rejected claims 4, 5, 28, 29, 32, 33, 34, 37-39, 42 and 43 under 35 U.S.C. § 102(b), as allegedly being anticipated by New England Biolabs Catalog (1996/1997). By the foregoing amendments, claims 4, 5, 28, 29, 32, 33, 34, 37-39, 42 and 43 have been canceled. Hence, this rejection has been rendered moot. However, Applicants respectfully traverse the Examiner's rejection as it may apply to new claims 44-47.

The Examiner contends that the New England Biolabs Catalog discloses random primers that are 24 or 36 nucleotides in length. The Examiner contends that this would encompass nucleic acids that encode RNA that are at least about 90% complementary to a nucleotide that is 100% complementary to the recited RNAs. The Examiner further contends that the property of hybridizing to the RNA recited in the present claims is

inherent to RNA encoded by the DNA disclosed in the New England Biolabs Catalog. There Examiner therefore concludes that the present claims are anticipated. Applicants respectfully disagree with the Examiner's contentions and conclusions.

Present claims 44-47 recite isolated DNAs that encode sense RNAs comprising at least 100 nucleotides, or antisense RNA comprising at least 100 nucleotides, that are 100% complementary to the specified RNA molecules (including bases 87-1400 of SEQ ID NO: 1). Applicants respectfully submit that New England Biolabs Catalog is limited to the disclosure of random 24 or 36 mer primers, and does not disclose the recited isolated DNAs that encode sense RNA comprising at least 100 nucleotides, or antisense RNA comprising at least 100 nucleotides, that are 100% complementary to the specified RNA molecules (including bases 87-1400 of SEQ ID NO: 1). Hence, this reference does not disclose every element of the present claims, and therefore, cannot and does not anticipate the presently claimed invention. *See* M.P.E.P. § 2131.

In view of the foregoing remarks, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 4, 5, 28, 29, 32, 33, 34, 37-39, 42 and 43 under 35 U.S.C. § 102(b).

Conclusion

All of the stated grounds of objection and rejection have been properly traversed, rendered moot or otherwise overcome. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn.

Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Respectfully submitted,

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